"APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8

[illegible], E.; [illegible], S.

"Investigation of liquefying some Bulgarian clays and kaolins [illegible] industrial significance."

GODISHNIK, Vol. 3, No. [illegible], 1956; Sofiia, Bulgaria

Monthly List of EAST EUROPEAN ACCESSIONS INDEX (EEAI), Library of Congress, Vol. [illegible], No. [illegible], August, 1959

Unclassified

APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8"

"APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8

GERASIMOV, E.; IVANCHVAROV, S.; BELEV, S.

Serpentinites of the village of Dolni Pasarel, Sofia District, as raw material for the production of forsterite refractories. Godishnik khim tekh 9 nc. 1:37-51 '62 [publ. '63].

APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8"

"APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8

GERASSIMOV, E. [Gerasimov, E.]; LEPKOVA, D.; CERVENKOVA, L. [Chervenkova, L.]

Problem of producing lighter fireproof building materials by the foam process. Doklady BAN 17 no.3:247-250 '64.

1. Vorgelegt von Akademiemitglied D.Ivanoff [Ivanov, D.].

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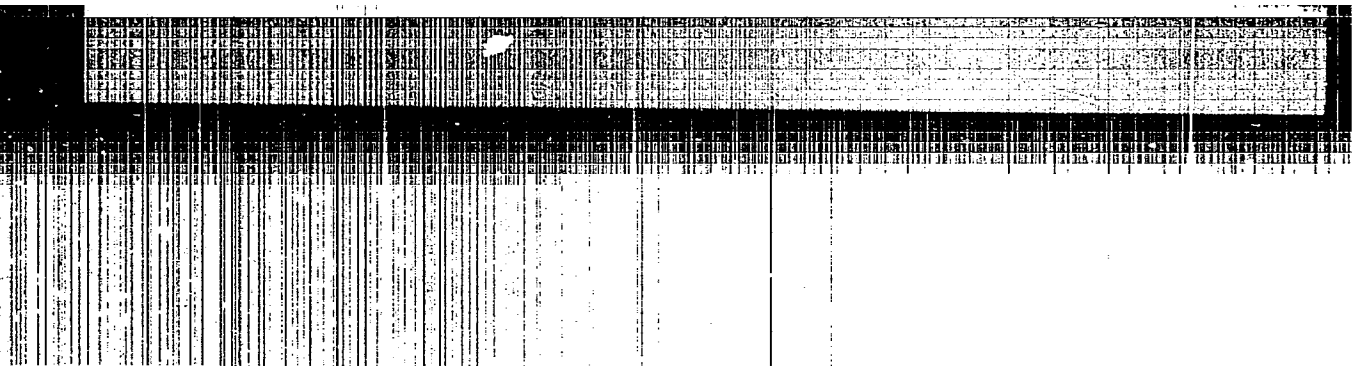

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1. GERASIMOV, F.E.

2. USSR (600)

4. Fish Culture

7. Result of mass breeding of acquarium fish, Priroda 42 no. 5, 1953.

9. Monthly List of Russian Accessions, Library of Congress, APRIL 1953, Uncl.

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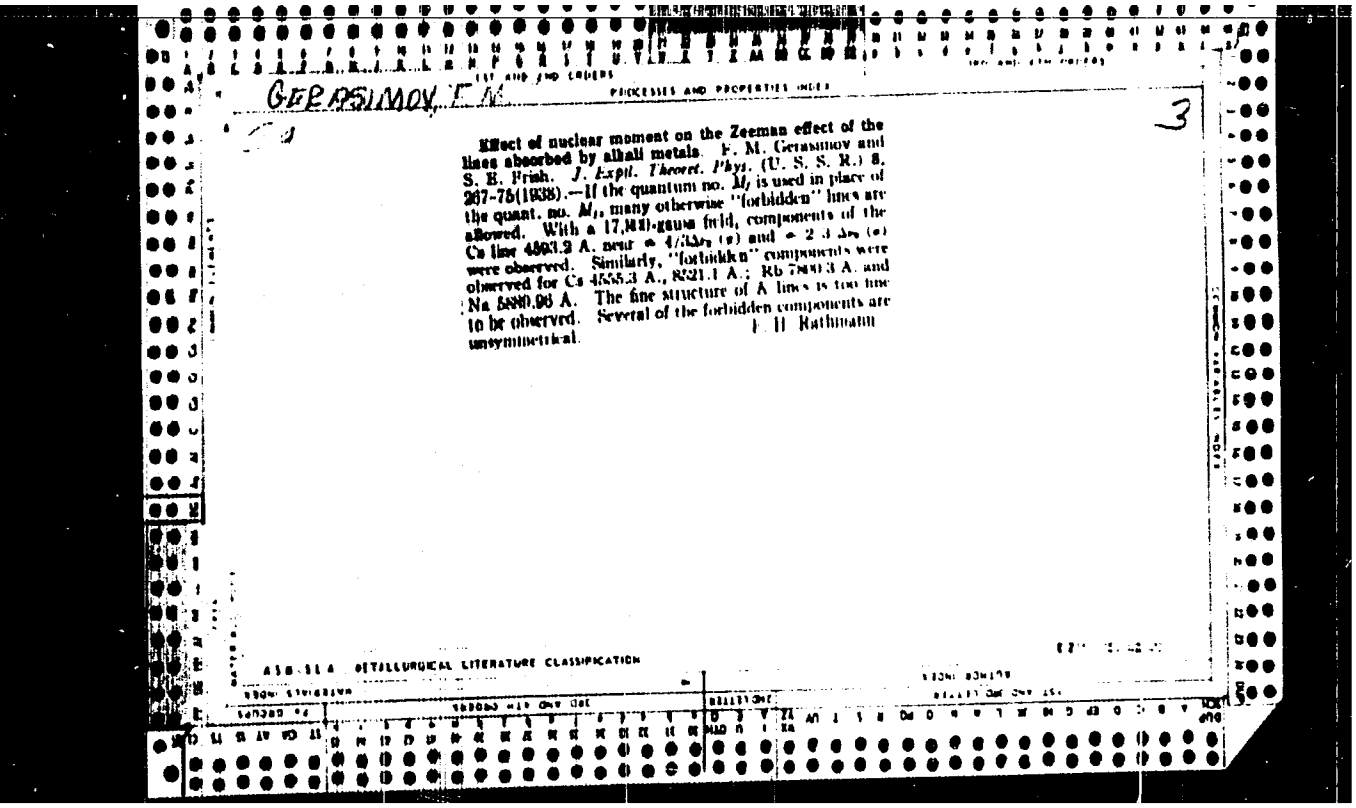

GERASIMOV, F. M.

3

Effect of nuclear moment on the Zeeman effect of the lines absorbed by alkali metals. F. M. Gerasimov and S. E. Frish. *J. Exptl. Theoret. Phys.* (U. S. S. R.) 8, 267-75(1938).—If the quantum no. M_I is used in place of the quant. no. M_J, many otherwise "forbidden" lines are allowed. With a 17,810-gauss field, components of the Cs line 4593.2 A. near σ 4/3$\Delta\nu_0$ (g) and σ 2/3 $\Delta\nu_0$ (e) were observed. Similarly, "forbidden" components were observed for Cs 4555.3 A., 8521.1 A.; Rb 7800.3 A. and Na 5890.96 A. The fine structure of A lines is too fine to be observed. Several of the forbidden components are unsymmetrical.

F. H. Rathmann

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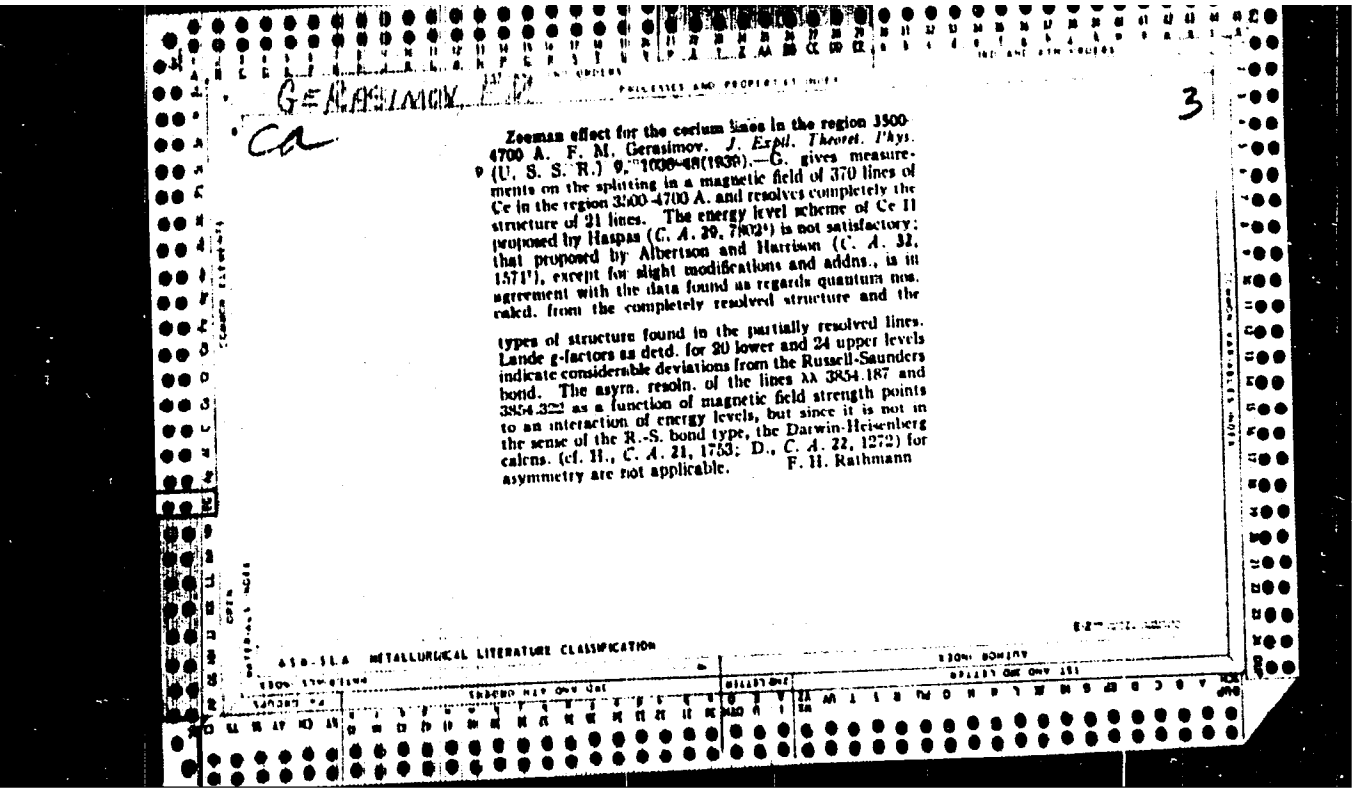

GERASIMOV

Ca

3

Zeeman effect for the cerium lines in the region 3500-4700 A. F. M. Gerasimov. *J. Exptl. Theoret. Phys.* (U. S. S. R.) 9, 1008-18(1939).—G. gives measurements on the splitting in a magnetic field of 370 lines of Ce in the region 3500-4700 A. and resolves completely the structure of 21 lines. The energy level scheme of Ce II proposed by Haspas (*C. A.* 29, 7802[1]) is not satisfactory; that proposed by Albertson and Harrison (*C. A.* 32, 1571[1]), except for slight modifications and addns., is in agreement with the data found as regards quantum nos. calcd. from the completely resolved structure and the types of structure found in the partially resolved lines. Lande g-factors as detd. for 20 lower and 24 upper levels indicate considerable deviations from the Russell-Saunders bond. The asym. resoln. of the lines λλ 3854.187 and 3854.322 as a function of magnetic field strength points to an interaction of energy levels, but since it is not in the sense of the R.-S. bond type, the Darwin-Heisenberg calcns. (cf. H., *C. A.* 21, 1753; D., *C. A.* 22, 1272) for asymmetry are not applicable.

F. H. Rathmann

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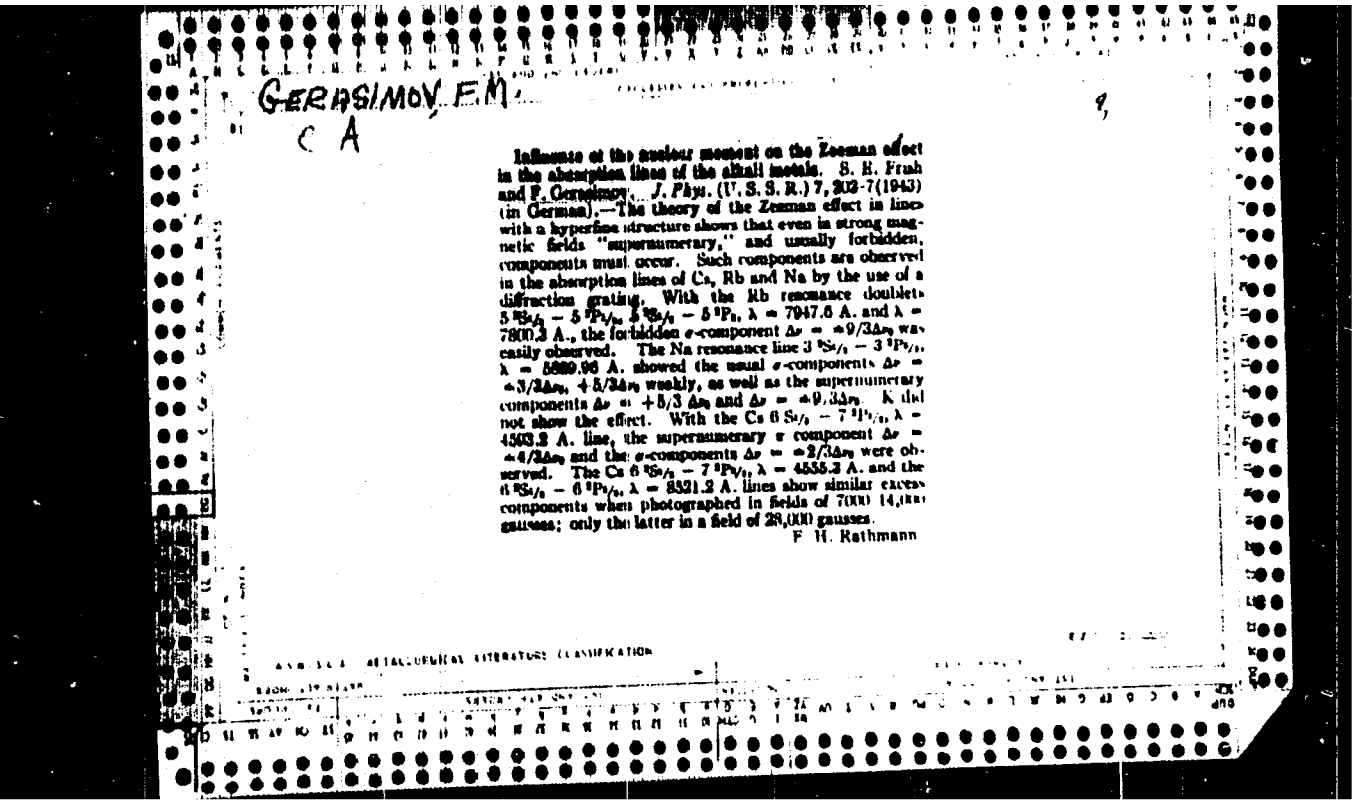

GERASIMOV, F.M.

C A

Influence of the nuclear moment on the Zeeman effect in the absorption lines of the alkali metals. S. E. Frish and F. Gerasimov. *J. Phys.* (U. S. S. R.) 7, 203-7(1943) (in German).—The theory of the Zeeman effect in lines with a hyperfine structure shows that even in strong magnetic fields "supernumerary," and usually forbidden, components must occur. Such components are observed in the absorption lines of Cs, Rb and Na by the use of a diffraction grating. With the Rb resonance doublets $5\,^2S_{1/2} - 5\,^2P_{1/2}$, $5\,^2S_{1/2} - 5\,^2P_2$, $\lambda = 7947.6$ A. and $\lambda = 7800.3$ A., the forbidden σ-component $\Delta\nu = \pm 9/3\Delta\nu_0$ was easily observed. The Na resonance line $3\,^2S_{1/2} - 3\,^2P_{1/2}$, $\lambda = 5889.96$ A. showed the usual σ-components $\Delta\nu = \pm 3/3\Delta\nu_0$, $\pm 5/3\Delta\nu_0$ weakly, as well as the supernumerary components $\Delta\nu = +5/3\,\Delta\nu_0$ and $\Delta\nu = \pm 9/3\Delta\nu_0$. K did not show the effect. With the Cs $6\,S_{1/2} - 7\,^2P_{1/2}$, $\lambda = 4593.2$ A. line, the supernumerary σ component $\Delta\nu = \pm 4/3\Delta\nu_0$ and the σ-components $\Delta\nu = \pm 2/3\Delta\nu_0$ were observed. The Cs $6\,^2S_{1/2} - 7\,^2P_{1/2}$, $\lambda = 4555.3$ A. and the $6\,^2S_{1/2} - 6\,^2P_{3/2}$, $\lambda = 8521.2$ A. lines show similar excess components when photographed in fields of 7000 14,000 gauss; only the latter in a field of 28,000 gauss.

F. H. Rathmann

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USSR/ Physics - Instruments

Card 1/1 Pub. 43 - 6/62

Authors : Gershun, F. M.

Title : Spectral characteristics of Soviet diffraction gratings

Periodical : Izv. AN SSSR. Ser. fiz. 18/6, 662-663, Nov-Dec 1954

Abstract : Brief report was read at the 9-th All-Union Conference on Spectroscopy (July 5-11, 1954) outlining the basic spectral characteristics of diffraction gratings totally manufactured in the USSR. The information given was gathered from actual testing of the diffraction gratings. Table.

Institution : .....

Submitted : .....

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GERASIMOV, F.M

PRIKHOT'KO, A F

24(7) 3 PHASE I BOOK EXPLOITATION SOV/1365

L'vov. Universytet

Materialy X Vsesoyuznogo soveshchaniya po spektroskopii. t. 1: Molekulyarnaya spektroskopiya (Papers of the 10th All-Union Conference on Spectroscopy. Vol. 1: Molecular Spectroscopy) [L'vov] Izd-vo L'vovskogo univ-ta, 1957. 499 p. 4,000 copies printed. (Series: Its: Pikychnyy zbirnyk, vyp. 3/8/)

Additional Sponsoring Agency: Akademiya nauk SSSR. Komissiya po spektroskopii. Ed.: Lazer, S.L.; Tech. Ed.: Saranyuk, T.V.; Editorial Board: Lavistsev, G.S., Academician (Resp. Ed., Deceased), Neporent, B.S., Doctor of Physical and Mathematical Sciences, Fabelinskiy, I.L., Doctor of Physical and Mathematical Sciences, Fabrikant, V.A., Doctor of Physical and Mathematical Sciences, Kornitskiy, V.G., Candidate of Technical Sciences, Rayskiy, S.M., Candidate of Physical and Mathematical Sciences, Klimovskiy, L.K., Candidate of Physical and Mathematical Sciences, Miliyanchuk, V.S., Candidate of Physical and Mathematical Sciences, and Glauberman, A. Ye., Candidate of Physical and Mathematical Sciences.

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"APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8

SOV/51-4-6-11/24

AUTHORS: Gerasimov, F.M., Tel'tevskiy, I.A., Naumov, S.S., Spizharskiy, S.N. and Nesmelov, S.V.

TITLE: Diffraction Gratings from the State Optical Institute (Difraktsionnyye reshetki Gosudarstvennogo Opticheskogo Instituta)

PERIODICAL: Optika i Spektroskopiya, 1958, Vol IV, Nr 6, pp 779-790 (USSR)

ABSTRACT: The present paper describes briefly the technique of preparation of optical diffraction gratings at the State Optical Institute imeni S.I. Vavilov and discusses in detail the optical characteristics of these gratings in the ultraviolet, visible and near infrared spectral regions. The technique of preparation of gratings was fully described in References 1, 2. Echelette gratings for the wavelengths 2.5-600 μ were described in a paper presented at the XIth All-Union Conference on Spectroscopy (Ref 3). The gratings are prepared by means of a screw-motion ruling machine (Fig 1) which can produce gratings of 150 x 150 mm area with 1200, 600, 300 and 200 lines/mm. This machine does not differ from the majority of machines decribed in literature. Figs 2 and 3 show certain details of the carriage of the ruling machine at the Institute. A typical profile of a diffraction grating is shown in Fig 4. The lower part of the figure shows

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Diffraction Gratings from the State Optical Institute

an electron microscope image of a grating with 1200 lines/mm. The optical characteristics of the gratings produced are discussed as well as the sources of certain errors. The resolving power of better gratings reaches 600 000. The relative intensity of Rowland's "ghosts" in the first order of gratings with 600 lines/mm is about 0.1%, and in better gratings it may be only 0.01%. The gratings of the State Optical Institute produce a high concentration of light in a given direction. Thus gratings with a step-like profile, with a slope of the working edge of 5-10°, concentrate in the maximum up to 85% of the total reflected light, which is near the theoretical limit. A characteristic change in the polarization properties of gratings was observed in the region of the maximum light concentration. On the short-wavelength side of the maximum the component with electric vibrations parallel to the grating lines is the more intense, and on the long-wavelength side of the maximum the component with electric vector vibrations perpendicular to the grating lines is stronger (Fig 10). There are 10 figures and 17 references, 8 of which are Soviet, 4 English, 3 American, 1 German and 1 translation of a Western work into Russian.

Card 2/2

ASSOCIATION: Gosudarstvennyy Opticheskiy Institut im. S.I. Vavilova (State Optical Institute imeni S.I. Vavilov)

SUBMITTED: January 17, 1958

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"APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8

SOV/51-5-6-7/19

AUTHORS: Gerasimov, P.M. and Naumov, S.S.

TITLE: An Interferometer with a Concave Diffraction Grating (Interferometr s vognutoy difraktsionnoy reshetkoy)

PERIODICAL: Optika i Spektroskopiya, 1958, Vol 5, Nr 6, pp 682-685 (USSR)

ABSTRACT: Light beams diffracted by a grating may interfere with one another provided they are coherent. The authors observed interference between beams diffracted by a plane or a concave grating. The apparatus used in experiments with plane gratings is shown schematically in Fig 1. Two diffracted beams (1 and 2 in Fig 1) were reversed by plane mirrors and after second diffraction at the grating they were focused by an objective, as shown in Fig 1. When the mirrors are placed at certain angles interference bands are observed at the focus. The optical system of an interferometer with a concave grating is shown in Fig 2. A light beam from a lamp 1 passes through an aperture 2 and after reflection from a half-silvered glass plate 3 falls on a concave grating 4. Diffracted beams of the first order are reversed by plane mirrors 5 and after a second refraction converge at a point 6 at which interference may be observed visually. The system can be used for observation of interference in monochromatic light only. The concave

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An Interferometer with a Concave Diffraction Grating

grating used had a radius of curvature of 5 m and 200 lines/mm. The grating width was 50 mm and the length of ruled lines was 130 mm. Photographs of interference bands obtained with the concave grating are shown in Fig 3. The error along the field does not exceed 0.1 bands. A wide central spot was due to light reflected from a grating as if from a concave mirror (zero-order beam). The weaker spots are due to multiple diffraction of strong lines emitted by the source. This interferometer was successfully applied to testing of reflecting surfaces and of plane diffraction gratings. There are 3 figures and 5 references, 4 of which are American and 1 Soviet.

SUBMITTED: January 17, 1958

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APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8"

"APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8

AUTHOR: Gerasimov, F.M., (Leningrad) SOV-29-58-7-9/24

TITLE: Diffraction Gratings (Difraktsionnyye reshetki)

PERIODICAL: Nauka i zhizn', 1958, Nr 7, pp 17-24, 1 p of innerfold (USSR)

ABSTRACT: The USSR has started to produce diffraction gratings. Until now the USA possessed a world monopoly in this field. The various types of diffraction gratings produced lately are not inferior to the best American ones. Soviet-made diffraction gratings are found not only in Soviet institutes, observatories and educational institutions, but also in the German Democratic Republic, in Afghanistan, Viet-Nam, Czechoslovakia and Burma. For the development of the production methods, Fedor Maksimovich Gerasimov, heading the Laboratoriya Gosudarstvennogo opticheskogo instituta (GOI) imeni S.I. Vavilova (Laboratory of the State Optical Institute imeni S.I. Vavilov) and Dmitriy Pavlovich Chekhmatayev

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Diffraction Gratings S/V-25-58-7-9/56

(posthumously) have been awarded the 1958 Lenin Prize. The author presents a detailed description of the production methods and the utilization of these gratings. There are 9 photos and 5 drawings.

1. Diffraction gratings--Production

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"APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8

SOV/51-6-6-29/34

24(4), 24(7)

AUTHORS: Rasnudeva, G.N. and Gerasimov, P.M.

TITLE: Diffraction Gratings for Separation of Spectral Orders (Difraktsionnyye reshetki dlya razdeleniya poryadkov spektra)

PERIODICAL: Optika i spektroskopiya, 1959, Vol 6, Nr 6, pp 826-827 (USSR)

ABSTRACT: The authors prepared special reflection gratings which could be used to separate spectra of various orders produced by other diffraction gratings with any number of lines per mm. These reflection gratings (separator-gratings) had 50 or 100 lines/mm. Their line profile was step-like with working surfaces inclined at 1° to the original surface in order to concentrate light in the first order. The separator gratings were crossed with other gratings (used at diffraction angles of 40-60°) and tested in an auto-collimating spectrograph with f = 3 m. A parallel beam reached a separator-grating (which was horizontal) making an angle of 20-40° with the plane parallel to the lines on this grating. After diffraction from the main grating (whose lines were vertical) the beam reached the separator grating for the second time and then passed on to an objective. Under these conditions multiple diffraction of beams was avoided but weak additional lines appeared due to neighbouring orders of the separator-grating. Spectral regions of the order of 1/2 octave both in the visible and ultraviolet regions

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Diffraction Gratings for Separation of Spectral Orders

could be photographed at the same time. Using a separator-grating with a 20 μ constant to observe spectra diffracted at a main grating with the same constant and diffraction angle of about 40° a region of the spectrum of about 2000 Å could be recorded on a plate or film of 9 x 12 cm; this spectrum was split into about 25 lines. The total length of the spectrum obtainable was 2 m. Dispersion in the region of 3000 Å was 0.6 Å/mm and in the region of 4500 Å it was 0.9 Å/mm. It was found that replicas could be used successfully as separator gratings. There are 4 English references.

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6.3000 (1024, 1035, 1141)
6.4780

87009

S/051/61/010/001/010/017
E201/E491

AUTHORS: Yakovlev, E.A. and Gerasimov, F.M.

TITLE: An Experimental Study of the Spectral Distribution of the Intensity of Polarized Light Diffracted by a Grating

PERIODICAL: Optika i spektroskopiya, 1961, Vol.10, No.1, pp.104-112

TEXT: The authors studied the reflection of monochromatic (λ = 0.4 to 1.7 μ) polarized light by diffraction gratings ruled on thin metal layers (line profiles were stepped). The reflection coefficients were measured, using apparatus shown schematically in Fig.1. A diffraction grating 7 was illuminated by a parallel beam of linearly polarized light from a grating monochromator 2 (3 and 4 are, respectively, the exit slit of the monochromator and a lens). The diffracted light was focused by means of a lens 8 onto a photocell 9. The reflection coefficients were found as the ratios of the intensities of a bea. diffracted by a grating and a beam reflected by a plane aluminized mirror 6 placed in the beam instead of the diffraction grating. An incandescent lamp 1 was used as the source of light. A Rochon prism 5 was used to polarize the light. The photocurrent of

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E201/E491

An Experimental Study of the Spectral Distribution of the Intensity of Polarized Light Diffracted by a Grati..s

the cell 9 was measured with a mirror galvanometer 10. In all, 40 plane gratings, with 200, 300, 600 and 1200 lines/mm, were studied. The spectral distributions of the diffracted light (Fig.2, 3 and 5) were displaced relative to one another when (a) the electric vector of incident light was parallel to the grating lines and when (b) electric vector was normal to the grating lines. The distribution for case (a) was always displaced towards shorter wavelengths with respect to the distribution for case (b). The displacement was proportional to the wavelength and inversely proportional to the grating constant (Fig.4). The displacement produced a change in the polarization of the diffracted light (the apparatus used for measurements of polarization is shown in Fig.7 and the results are plotted against wavelength in Fig.6). Replica gratings made of polymethyl methacrylate or gelatine did not exhibit this displacement which was characteristic of metals

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E201/E491

An Experimental Study of the Spectral Distribution of the Intensity of Polarized Light Diffracted by a Grating

(Fig.8 and 9). There are 9 figures, 1 table and 4 references: 1 Soviet and 3 non-Soviet (one of which is translated into Russian).

SUBMITTED: March 21, 1960

Card 3/3

APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8"

"APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8

RASSUDOVA, G.N.; GERASIMOV, F.M.

Precision diffraction gratings for meteorological purposes.
Opt. i spektr. 11 no.2:259-261 Ag '61. (MIRA 14:8)
(Diffraction gratings)
(Meteorological instruments)

APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8"

"APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8

YAKOVLEV, E.A.; GERASIMOV, F.M.

Apropos of C.A.Palmer's remarks. Opt.i spektr. 13 no.1:106 Jl '62. (MIRA 15:7)

(Spectrum analysis)

APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8"

"APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8

RASSUDOVA, G.N.; GERASIMOV, F.M.

GOI echelon diffraction gratings. Izv. AN SSSR. Ser. fiz. 26 no.7:960-963 Jl '62. (MIRA 15:8)

(Diffraction gratings)

APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8"

"APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8

RASSUDOVA, G.N., GERASIMOV, F.M.

Use of reflecting diffraction gratings in interference systems for measuring linear shifts. Part 1. Opt. i spektr. 14 no.3:406-413 Mr '63. (MIRA 16:4)

(Diffraction gratings) (Interferometry)

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"APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8

S/051/63/014/004/018/026
E039/E420

AUTHORS: Rassudova, G.N., Gorasimov, F.M.

TITLE: The use of reflecting diffraction gratings in interference systems for measuring linear shifts. II

PERIODICAL: Optika i spektroskopiya, v.14, no.4, 1963, 559-563

TEXT: The results are described of an experimental investigation of three variants of interference systems using reflection and transmission gratings and also for two systems using reflection gratings, one with a half silvered mirror and the other a Wollaston prism as a beam divider. A comparison is made of the main properties of these systems. It is shown that they each cover a limited range and that in this respect they are complementary to each other. These limits are connected with differences in dependence of the band contrast on distance between the gratings, the angular size of the source and the width of the wavelength range used. The merit of the different systems within the limits of their applicability lies in the value of the bands rather than in the resulting light fluxes. The systems using reflecting gratings can only be effectively used for obtaining

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E039/E420

The use of reflecting ...

interference bands of small value (from 0.1 to 10 μ) and require very accurate measurements. It is essential that gratings of spectroscopic quality are used for this type of measurement. There are 3 figures and 1 table.

SUBMITTED: June 7, 1962

Card 2/2

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"APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8

S/0051/64/016/001/0133/0138

ACCESSION NR: AP4011405

AUTHOR: Gerasimov, F.M.; Naumov, S.S.; Denisov, L.M.

TITLE: Diffraction gratings concentrating radiation in the vacuum ultraviolet and x-ray regions

SOURCE: Optika i spektroskopiya, v.16, no.1, 1964, 133-138

TOPIC TAGS: diffraction grating, concave diffraction grating, diffraction grating ruling, ultraviolet spectroscopy, x-ray spectroscopy

ABSTRACT: The characteristics of concave diffraction gratings with step profile rulings are discussed. Conventional gratings commonly employed in spectroscopy, particularly in the wavelength region below 1000 Å, are characterized by V shaped lines separated by flats (a in the figure - see Enclosure). Such gratings in the short wavelength region are characterized by low efficiency as regards concentration of light: about 20% in one of the first orders. In practice, owing to unavoidable irregularities, the actual profile has the appearance shown in b, so that the efficiency is further reduced. In the present paper there are discussed concave gratings with a line profile of the type shown in c. Theoretically such gratings should be

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"APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8

ACC.NR: AP4011495

more efficient. The angle of inclination α must be of the order 3°. Gratings of this type have been ruled on aluminum and have proved capable of concentrating up to 85% of the reflected radiation in one order. Hitherto, such gratings have not been ruled on glass owing to the mechanical difficulties involved. These difficulties stem from the fact that the grooves must be very shallow in view of the small value of the angle α and the fact that the angle α must be maintained constant over the curved surface of the gratings. The authors have ruled and tested concave gratings of this step type on aluminum coated on glass (1200 lines/mm) and on F1 glass with 300, 600 and 1200 lines/mm and angles α from 30' to 4°. A special set-up was developed for visual determination of the location of maximum concentration. The experimental gratings were tested in a number of short wavelength spectrographs and yielded satisfactory results, i.e., resulted in a significant reduction of the exposure time. The results of measurement of the efficiency of the gratings in the 1100 to 2500 Å region are described elsewhere (S.A.Kulikov and N.G.Nikitin, Opt.-mekhanich.promyshlennost',12,2,1962). A number of the experimental gratings are now being tested further in oblique incidence spectrographs intended for the 100 to 1000 Å region. Orig.art.has: 1 formula and 4 figures.

Card 2/2

APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8"

"APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8

L 3153-66 EWT(1) IJP(c)

ACCESSION NR: AP5016042 UR/0368/65/002/005/0402/0408
535.428

AUTHORS: Yakovlev, E. A.; Gerasimov, F. M.

TITLE: Effect of errors in the profile of diffraction grating lines on the distribution of intensity in polarized light

SOURCE: Zhurnal prikladnoy spektroskopii, v. 2, no. 5, 1965, 402-408

TOPIC TAGS: diffraction grating, spectral distribution, light polarization, light reflection

ABSTRACT: In view of lack of detailed published data on the subject, the authors investigated gratings with 600 lines/mm, whose surfaces displayed visible variations of the reflective properties. In addition, echelettes with 50 lines/mm were investigated, in which there were defects on the reflecting surfaces in which defects were artificially produced on the surfaces by means of cutting longitudinal grooves or steps. The reflection coefficients of 600 lines/mm gratings were measured with apparatus described earlier (Opt. i spektr.

Card 1/2

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"APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8

L 3153-66

ACCESSION NR: AP5016042

v. 10, 1, 104, 1961). The distribution of intensity over the echelettes was measured with an infrared spectrometer (IKS-12) equipped an autocollimation monochromator. The results show that various defects on the reflecting faces of the grooves affect primarily the components in which the electric vector oscillates perpendicular to the grooves, thus causing a decrease in the reflection coefficient at the maximum and a distortion of the intensity distribution curve, owing to the stronger manifestation of the Wood's anomalies. In gratings with particularly large dimensions and a large number of lines per millimeter, these phenomena become more aggravated as a result of averaging of the reflecting properties over the entire grating surface, different sections of which differ slightly from one another not only in the shape of the groove faces, but also in the groove slopes and other defects. In view of the small dimensions, these defects cannot be investigated in sufficient detail. Orig. art. has: 2 figures.

ASSOCIATION: None

SUBMITTED: 04Jan65 ENCL: 00 SUB CODE: OP

NR REF SOV: 005 OTHER: 009

Card 2/2

APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8"

"APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8

GERASIMOV, F.M.; SERGEYEV, V.P.; TEL'TEVSKIY, I.A.; SERGEYEV, V.V.; MARICHEV, B.V.

Use of moire interference bands for controlling the cutting of diffraction gratings. Opt. i spektr. 19 no.2:270-278 Ag '65. (MIRA 18:8)

APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8"

"APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8

L 5421-66 EWT(1) IJP(c)

ACCESSION NR: AP5019762 UR/0051/65/019/002/0270/0278
535.421:535.417

AUTHOR: Gerasimov, P. M.; Sergeyev, V. P.; Tel'tevskiy, I. A.; Sergeyev, V. V.; Marichev, N. I.

TITLE: The use of moire interference fringes to control the ruling of diffraction gratings

SOURCE: Optika i spektroskopiya, v. 19, no. 2, 1965, 270-278

TOPIC TAGS: diffraction grating, light interference, light diffraction

ABSTRACT: A method is described for the control of a ruling engine, based on moire fringges which are formed by a system consisting of a transparent and a reflecting diffraction grating. The control method is claimed to be simpler that that of G. R. Harrison and co-workers (J. Opt. Soc. Am. v. 49, 205, 1959 and earlier papers; G. V. Stroke, ibid. v. 51, 1321, 1961), who used a Michelson interferometer. The equipment is described and the properties and accuracy of the method are examined. The mechanical part of the equipment does not differ markedly from a standard ruling engine and the optical system is illustrated in Fig. 1 of the Enclosure. About 100 gratings with 200, 300, 800, 1200, and 2400 lines/mm were prepared with an experimental ruling engine, and their qualities were on the whole superior to

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"APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8

L 5421-66
ACCESSION NR: AP5019762

those of gratings prepared with mechanical ruling engines. Rowland ghosts were almost completely eliminated. Orig. art. has: 6 figures and 2 formulas.

ASSOCIATION: none

SUBMITTED: 21May64 ENCL: 01 SUB CODE: OP

NR REF SOV: 002 OTHER: 005

Card 2/3

APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8"

"APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8

L 5421-66

ACCESSION NR: AP5019762

ENCLOSURE: 01

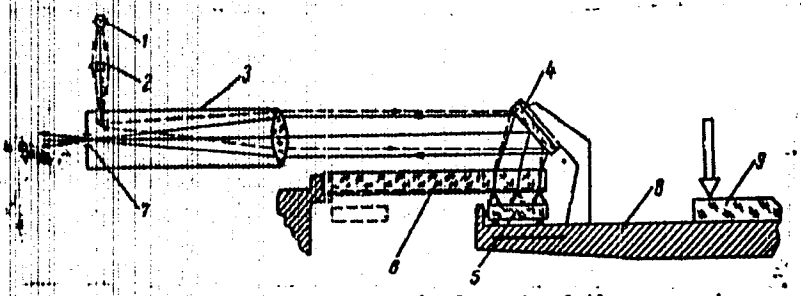

Fig. 1. Diagram of the optical part of the apparatus

1 - Incandescent lamp, 2 - condenser, 3 - collimator, 4 - swinging mirror, 5,6 - gratings, 7 - exit slit, 8 - ruling carriage, 9 - ruled grating

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"APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8

L 32625-66 EWT(1) IJP(c) WW/GG

ACC NR: AP6015596 SOURCE CODE: UR/0368/66/004/005/0454/0455

AUTHOR: Yakovlev, E. A.; Gerasimov, F. M. 42 B

ORG: none

TITLE: Investigation of integral reflectivity of a diffraction grating in polarized light

SOURCE: Zhurnal prikladnoy spektroskopii, v. 4, no. 5, 1966, 454-455

TOPIC TAGS: reflector diffraction grating, light reflection coefficient, LIGHT POLARIZATION

ABSTRACT: This is a continuation of an earlier study of the distribution of energy in the spectrum of a diffraction grating (Opt. i spektr. v. 19, 417, 1965) where it was observed that the sum of the reflection coefficients in all orders of the spectra differs with the polarization. The present paper reports the results of an experimental check of the previous calculations. The experiment was made with two gratings of 600 lines/mm, cut on aluminum and having lines with step-like profiles. The faces of the steps were at an angle of ~120°, and the face with the smaller slope made an angle of 10° or 23° in the two gratings, respectively. The apparatus used to measure the reflection coefficients, for near-normal incidence, was the same as described by the authors earlier (ZhPS v. 2, 402, 1965 and Opt. i spektr. v. 10, 104, 1961). The measurements were made in the λ/d (grating constant) range 0.35 - 1.8. The results show that for the parallel component the sum is close to 100% in both cases. In the case of the perpendicular component, the sum decreased sharply at wavelengths equal

Card 1/2 UDC: 535.421

APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8"

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L 32625-66

ACC NR: AP6015596

to the grating constant (λ/d) or smaller than this constant by an integer. The total reflection coefficient of the gratings was also measured directly with a spectrophotometer with integrating sphere, so that scattered radiation could also be taken into account. The results were comparable, although they could not be identical because the latter method was limited to visible light. The behavior of the sum of the reflection coefficients, and also its dependence on the depth of the grating line, the wavelength, and the polarization, are similar to those observed for the intensity distribution in the region of the Wood anomaly, thus indicating a connection between the two. Orig. art. has: 1 figure.

SUB CODE: 20/ SUBM DATE: 05Jul65/ ORIG REF: 003/ OTH REF: 002

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APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8"

"APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8

ACC NR: AP7007061 SOURCE CODE: UR/0368/66/004/004/0339/0341

AUTHOR: Yakovlev, E. A.; Gerasimov, F. M.

ORG: none

TITLE: Nature of the polarizing action of a diffraction grating

SOURCE: Zhurnal prikladnoy spektroskopii, v. 4, no. 4, 1966, 339-341

TOPIC TAGS: light polarization, optics

SUB CODE: 20

ABSTRACT: It is shown that the polarizing properties of gratins depend upon the penetrating depth of differently polarized waves into the grooves. It is possible to lower the degree of polarization by appropriate variation of the grating profile. [Based on authors' English Abstract] Orig. art. has: 2 figures. [JPRS: 35,883]

Card 1/1 UDC: 535.421

APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8"

"APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8

ACC NR: AP7006035 SOURCE CODE: UR/0368/66/005/002/0257/0259

YAKOVLEV, E. A., GERASIMOV, F. M.

Dependence of the Polarizing Action of Diffraction Gratings on the Line Profile Parameters"

Moscow, Zhurnal Prikladnoy Spektroskopii (Journal of Applied Spectroscopy), Vol 5, No 2, Aug 66, pp 257-259

Abstract: One of the basic peculiarities of the polarizing action of gratings with stepwise profile is the change in degree of polarization across the spectrum. This is caused by the relative shift in the distribution curves for the intensity of the two polarization states. Consequently, the authors experimentally investigated the effect of slanted groove sides on the distribution intensity of polarized light. Tests carried out on gratings with 50 lines/mm showed that the slanted sides affect mainly the intensity ratio of the maxima of the two polarizations, while their relative positions change only slightly. Consequently, the polarization of diffracted radiation cannot be substantially altered by changing the angle between the sides of the grooves. Orig. art. has: 1 figure, 1 formula, and 1 table. [JPRS: 38,491]

ORG: none

TOPIC TAGS: light polarization, light diffraction

SUB CODE: 20 / SUBM DATE: 05Jul65 / ORIG REF: 005 / OTH REF: 002

Card 1/1 UDC: 535.421

APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8"

"APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8

GERASIMOV, F. P.

Making potato silage. Korm. Baza, 3, No 9, 1952.

APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8"

"APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8

1. GERASIMOV, F. P.

2. USSR (600)

4. Feeding and Feeding Stuffs

7. Mass fattening of hogs on inexpensive local feeds, Sov. zootekh, 7 No. 5, 1952

9. Monthly List of Russian Accessions, Library of Congress, July 1952. Unclassified

APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8"

"APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8

GERASIMOV, F. R.

Spravochnik po Voyennoy Topografii (Handbook of Military Topography) Third edition, compiled by Maj Gen of Tech Trps F. R. GERASIMOV. Military Publishing House, 1953, 128 pages, price 1 ruble, 75 kopecks.

The book was reviewed in an article by Col V. SOROKIN. (Voyennyy Vestnik. No. 2, Feb 1954)

SO: SUM 163, 19 July 1954.

APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8"

"APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8

GERASIMOV, F.Ia., general-mayor tekhn.voysk; DUKACHEV, M.P., podpolkovnik, red.; SOKOLOVA, G.F., tekhn.red.

[Handbook of military topography] Spravochnik po voennoi topografii. Izd.3., perer. i dop. Sost. F.IA. Gerasimovym. Moskva, Voen.izd-vo M-va obor.SSSR, 1953. 127 columns. (MIRA 13:5)

1. Russia (1923- U.S.S.R.) Armiya. General'nyy shtab. Voyenno-topograficheskoye upravleniye.
(Military topography)

APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8"

"APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8

GERASIMOV, F.Ya.

V.V. Vitkovskii; on the 100th anniversary of his birth. Geod.i kart. no.6:54-60 Ag '56. (MLRA 9:11)
(Vitkovskii, Vasilii Vasil'evich, 1856-1924)

APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8"

"APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8

3(4) SOV/6-59-7-22/25

AUTHOR: Gerasimov, F. Ya.

TITLE: Topographers During the Civil War (Topografy v period grazhdanskoy voyny)

PERIODICAL: Geodeziya i kartografiya, 1959, Nr 7, pp 69 - 76 (USSR)

ABSTRACT: This is a historical survey of the activity of topographers during the Civil War of 1917-21. The hard conditions for topographic work at that time are pointed out. The following topographers, who had then distinguished themselves, are mentioned: V. F. Naydenov, N. M. Aleksapol'skiy, A. N. Petrov (now Colonel retired), V. A. Barinov (now Professor and Doctor of Technical Sciences), V. V. Vitkovskiy, Professor D. D. Sergiyevskiy, G. G. Strakhov.

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APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8"

"APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8

SOV/133-59-2-4/26

AUTHORS: Gerasimov, G.I., Korablin, F.A., Nemkin, V.M. and Rednov, V.A.

TITLE: Operation of Iron Ladle Cars in the Blast Furnace Department of the Magnitogorsk Metallurgical Combine (Ekspluatatsiya chugunovoznykh kovshey v domennom tsekhe MMK)

PERIODICAL: Stal', 1959, Nr 2, pp 110-111 (USSR)

ABSTRACT: A comparison of the operation of two types of iron ladles: UZTM and Kling types with a spherical bottom and Bamag type with a flat bottom is compared. Main characteristics of the ladles are given in the table and fig.1. Service life of the flat ladle lining is on average 60 days during which 60,000 tons of iron is transported. Hot repairs of Bamag ladles present no difficulties. The lining wears out uniformly along the height of the ladle. The removal of worn lining can be done in 2 hours by one man using a crane (fig.2). Relining requires 6 man shifts. The service life of UZTM and Kling ladles is 40-45 days during which they transport 25-30,000 tons of iron. The lining

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Operation of Iron Ladle Cars in the Blast Furnace Department of the Magnitogorsk Metallurgical Combine

of these ladles errodes non-uniformly (with the train movement) due to the spherical bottom. The removal of the old lining requires 8 man shifts and the relining 24 man shifts. It is concluded that the Bamag type ladles are considerably more economical and easy in operation. The manufacture of flat bottom ladles with a conical top of a round cross-section is recommended. There is 1 table and 2 figures.

ASSOCIATION: Magnitogorskiy Metallurgicheskiy Kombinat (Magnitogorsk Metallurgical Institute)

APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8"

"APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8

TIMOFEYEV, V. N.; KASHTANOVA, S. P.; Prinimali uchastiye: KUZNETSOVA, L. M., inzh.; GERASIMOV, G. I., laborant; CHERNIKOVA, P. I., laborant

Investigating coefficients of heat transfer by convection and of the hydraulic resistance of new checkerwork shapes in blast furnace air preheaters. Sbor. nauch. trud. VNIIMT no.8:68-105 '62. (MIRA 16:1)

(Blast furnaces) (Heat—Convection) (Fluid mechanics)

APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8"

"APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8

SHKLYAR, F. R.; TIMOFEYEV, V. N.; Prinimali uchastiye: PAKHALUYEV, K. M., inzh.; KOROLEV, N. M., inzh.; CHEREMNYKH, V. I., laborant; GERASIMOV, G. I., laborant; ROMANTSEVA, E. P., laborant; RUZHENTSEVA, T. M., laborant

Experimental investigation of the regenerative heat exchange process. Sbor. nauch. trud. VNIIMT no.8:119-136 '62. (MIRA 16:1)

(Air preheaters—Testing)
(Heat—Transmission)

APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8"

"APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8

TIMOFEYEV, V. N.; SHKLYAR, F. R.; PALTUSOVA, K. I.; Prinimali uchastiye: PAKHALUYEV, K. M., inzh.; IZMAYLOV, O. A., inzh.; DHUSOVITIN, A. M., inzh.; GORDEYEV, S. V., inzh.; RUZHENTSEVA, T. M., laborant; GERASIMOV, G. I., laborant

Aerodynamics of blast furnace air preheaters. Sbor. nauch. trud. VNIIMT no.8:302-347 '62. (MIRA 16:1)

(Blast furnaces)
(Air preheaters—Aerodynamics)

APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8"

"APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8

TIMOFEYEV, V. N.; FEVRALEVA, I. A.; Prinimali uchastiye: RUZHENTSEVA, T. M., laborant; GERASIMOV, G. I., laborant

Heat transfer from plates and rectangular parallelipipeds with transverse and longitudinal flowing of gases around them. Sbor. nauch. trud. VNIIMT no.8:396-430 '62. (MIRA 16:1)

(Heat—Convection) (Gas flow)

APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8"

"APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8

TIMOFEYKV, V. N.; FEVRALEVA, I. A.; VAVILOVA, M. A.; Prinimali uchastiye:
GERASIMOV, G. I., laborant; RUZHENTSEVA, T. M., laborant;
CHERKMAYEVA, L. A., laborant; YASAKOVA, T. M., laborant

Investigating convective heat transfer to plates in a flow of gases. Sbor. nauch. trud. VNIIMT no.8:431-453 '62. (MIRA 16:1)

(Heat—Convection) (Gas flow)

APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8"

"APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8

SOV/76-33-9-22/39

5(4)
AUTHORS: Gerasimov, G. N., Purmal', A. P., Tsentsiper, A. B. (Moscow)

TITLE: Photolysis of H_2O_2 in Alkaline Media

PERIODICAL: Zhurnal fizicheskoy khimii, 1959, Vol 33, Nr 9, pp 1806-1807 (USSR)

ABSTRACT: In a previous paper (Ref 1), a chain mechanism of the photochemical decomposition of hydrogen peroxide (I) in aqueous media was suggested. In this pattern, however, active intermediate products with an ion- or ion-radical character were not taken into account. The magnitude of the aggregate quantum yield in the latter case seems to be almost completely independent of the pH of the medium. Since the data found in publications are contradictory, the investigations referred to in the title were carried out by means of an apparatus already described (Ref 1) and, in the main, at 20°C. The reaction rate was determined by gas volumetric or permanganometric measurements of the (I)-concentration. The latter varied from 0.08 to 0.105 mol/l in the various test series. The pH-measurements (in the KOH- and NaOH-solutions) were carried out with a glass electrode and the potentiometer LP-5. The results obtained in the measurements showed that within the

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"APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8

Photolysis of H_2O_2 in Alkaline Media SOV/76-33-4-22/39

range of pH 6.0 - 11.2 the photolysis rate of (I) does not depend on the pH. It was found that no ions or ion radicals were formed. The acceleration of the thermal decomposition of (I) (at 40°), which comes about as the OH^- ion concentration rises, is considered due to a weakening of the O-O peroxide bond (Ref 7) and the acceleration of the thermal radical decomposition of (I). The stabilizing effect of H^+-ions in the thermal and photochemical (I) decomposition is explained by the formation of resistant perhydroxonium ions $\left[H.H_2O_2\right]^+$. There are 7 references, 3 of which are Soviet.

SUBMITTED: January 10, 1956

Card 2/2

APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8"

"APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8

83704
S/190/60/002/006/009/012
B015/B064

15.8101 also 2209

AUTHORS: Medvedev, S. S., Abkin, A. D., Khomikovskiy, P. M., Gerasimov, G. N., Gromov, V. F., Chikin, Yu. A., Teingister, V. A., Auer, A. L., Yakovleva, M. K., Mezhirova, L. P., Matveyeva, A. V., Bezzubik, Z. G.

TITLE: Polymerization of Ethylene Under the Influence of γ-Radiation

PERIODICAL: Vysokomolekulyarnyye soyedineniya, 1960, Vol. 2, No. 6, pp. 904-915

TEXT: The radiation-chemical polymerization of ethylene in the gaseous phase and in organic substances was investigated at different pressure and radiation dose as well as some properties of the polymers formed. Co^{60} γ-radiation sources of the institut im. Karpova (Institute imeni Karpov) (1400, 1800, and 20000 gram equiv. Ra) and pressures of 50-300 atm, radiation dose of 17 to 165 r/sec, and 25°C (some experiments were made at 50°C) were the conditions. The experiments were carried out in a corresponding device (Fig. 1). The ethylene used was mass-

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"APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8

8704
S/190/60/002/006/009/012
B015/B064

Polymerization of Ethylene Under the Influence of γ-Radiation

spectroscopically analyzed by M. V. Tikhomirov and M. V. Gur'yev. The molecular weight of the polyethylene obtained was determined by the method of light scattering by I. G. Soboleva and N. V. Mekletsova; particular data on this will be given in a separate paper. The experiments of polymerization in heptane, cyclohexane, methanol, and acetone (50 atm, 25°C, ~100 r/sec) showed (Table 1) that reaction proceeds ten times more rapidly than in the gaseous phase. The polymers formed have a molecular weight of 20000-40000. Polymers of the structure $Cl_3C(C_2H_4)_2Cl$ (60%) and $Cl_3C(C_2H_4)_3Cl$ (20%) form in good yield in carbon tetrachloride. Polymerization in the gaseous phase was investigated at constant pressure (100-300 atm, 72 r/sec) and decreasing pressure (100 and 150 atm, 17-165 r/sec, 25° and 50°C). The polymer yield increases rapidly if experiments are made in the presence of polyethylene (Table 2). To begin with, the polymerization rate increases with time and reaches then a constant value. The mean molecular weight and the characteristic viscosity of the polymers increases with proceeding transformation (Table 3). The mean reaction rate amounts to 16.9 g/l.hour at 300 atm, 25°C, a duration of 24 hours and radiation dose of 72 r/sec, and the maximum rate

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"APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8

Polymerization of Ethylene Under the Influence of γ-Radiation

20.5 g/l.hour (Table 4). The mean molecular weight and viscosity of polyethylene (Table 5) rise with pressure (i.e. the ethylene concentration). The maximum rate of polymerization increases somewhat with the radiation dose with a proportionality factor of 0.3, while the radiation-chemical yield decreases with an increase in the radiation dose with a factor of 0.7. The molecular weight of polyethylene increases with a reduction of the radiation dose with a factor of 0.7. The molecular weight of polyethylene increases with decreasing radiation dose (Table 6). A temperature increase from 25°C to 50°C at constant ethylene concentration (330 g/l) causes a lesser increase in the polymerization rate and the molecular weight (Table 7). Investigations carried out by Yu. M. Malinskiy and B. I. Everev in the laboratory of radiochemistry of the authors' institute showed that the polyethylene obtained has a higher density (0.945-0.975 g/cm^3) and degree of crystallization than high-pressure polyethylene, differs, however, only slightly from the latter with respect to the tensile strength. In conclusion, the authors thank A. Kh. Breger, V. B. Osipov, and V. A. Gol'din for assisting in carrying out the experiments with the gamma emitters. There are 8 figures, 7 tables, and 11 references: 5 Soviet, 4 US, 1 British, and 1 Belgian.

APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8"

"APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8

83704

Polymerization of Ethylene Under the Influence of γ -Radiation

S/190/60/002/006/009/012
B015/B064

ASSOCIATION: Fiziko-khimicheskiy institut im. L. Ya. Karpova
(Physico-chemical Institute imeni L. Ya. Karpov)

SUBMITTED: February 24, 1960

X

Card 4/4

APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8"

"APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8

S/190/63/005/004/002/020
B101/B220

AUTHORS: Gerasimov, G. N., Abkin, A. D., Khomikovskiy, P. M.

TITLE: Mechanism of heterogeneous polymerization of ethylene under the effect of ionizing radiations

PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 5, no. 4, 1963, 479-486

TEXT: A method was developed for determining the diffusion coefficient of ethylene in polyethylene by plotting the desorption curve, after the polyethylene had been previously saturated under pressure (up to 200 atm) with ethylene. The desorption-induced change in weight of the polyethylene was measured. The diffusion coefficient was at 25°C ~3.5, at 38°C ~6.0, at 50°C ~9.0. The solubility of ethylene in polyethylene is proportional to its volatility, and with constant volatility independent of the temperature. With constant temperature, the diffusion coefficient is independent of the solubility of ethylene. The specific surface and the pore diameter of the polyethylene was determined with crypton by the method of A. Zettlemoyer, A. Chanda, E. Gamble (J. Amer. Chem. Soc., 72, 2752, 1950). The specific surface was dependent on the conditions of polymerization; it was (m^2/g): 20.2 with a dose of 62 r/sec, 300 atm, 70°C, irradiation time 10 hr;

Card 1/2

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Mechanism of heterogeneous ...

33.2 at 141 r/sec, 400 atm, 25°C, 6 hr; and 18.0 at 141 r/sec, 400 atm, 25°C, 12 hr. Assuming cylindrical pores their internal diameter r_0 and wall thickness d are calculated: $r_0 = 1.66 \cdot 10^{-5}$ cm, $d = 6.32 \cdot 10^{-6} - 1.69 \cdot 10^{-5}$ cm. Based on the cylindrical model and using the method of J. Crano (Mathematics of Diffusion, Oxford Univ, Press, London, 1957), a rate of ethylene addition at the radicals inside the polymer of 23.2 g/l·sec was found, whereas the experimental data vary between 8.5 and 45.0 g/l·hr. This difference is explained by the fact that the concentration of the reactive radicals inside the polymer is less than 10^{-3} mole/l. From the proportionality between rate of polymerization and specific surface it is concluded that the reactive radicals are mainly at the surface of the polymer. There are 4 figures and 3 tables.

ASSOCIATION: Fiziko-khimicheskiy institut im. L. Ya. Karpova (Physico-chemical Institute imeni L. Ya. Karpov)

SUBMITTED: November 5, 1961

Card 2/2

APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8"

"APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8

ACCESSION NR: AP4040956 S/0020/64/156/005/1150/1153

AUTHOR: Gerasimov, G. N., Khomikovskiy, P. M., Abkin, A. D.

TITLE: Ethylene radiation polymerization mechanism

SOURCE: AN SSSR. Dorklady*, v. 156, no. 5, 1964, 1150-1153

TOPIC TAGS: ethylene, ethylene polymerization, alkyl radical, polyethylene, EPR, EPR spectrum, trans-vinyl bond, polymer

ABSTRACT: Radiation polymerization of ethylene at temperatures below the polymer's melting point is characterized by the fact that the reaction rate is increased at the beginning of the process, attains a maximum and then decreases. This observed effect is not associated with a change in the gaseous phase composition but is determined by the accumulation of the solid polymer. The present work is a study of the kinetics of radiation polymerization of ethylene with the help of a specially-designed dilatometer in which the reaction rate was measured under rigidly constant pressure. The dilatometer design is to be described in a special article. Ethylene whose composition was given by S. S. Medvedev et al (Vysokomolek. soyed. 2, (1960), 904) was used in the experiment. The polymerization was carried out on a K-60000 gamma radiation source at 100-250 at.,

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"APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8

ACCESSION NR: AP4040956

25-55C temperature and dosage rate (I) of 9 rad/sec. The kinetic curves are characterized by a rate maximum W_{max}. The radiation polymerization of ethylene can proceed in the gaseous phase and in the solid polymer owing to the dissolved ethylene contained in the polymer. Experiment shows that the life period of radiation polyethylene radicals at room temperature coincides by order of magnitude with the dark reaction period. The radicals have a heptacomponent EPR spectrum which is characteristic of allyl radicals. The cocrystallization of the radicals with the polymer radicals takes place very rapidly. The concentration of the radicals in the gaseous phase is extremely low and can be disregarded through the interaction of these radicals with the radicals in the polymer. The overall change in polymerization rate depends to a large degree upon the probability of the radical transition between individual areas of the solid polymer. Two models of polymerization were examined: (1) the polymer is a homogeneous system, and (2) the polymer is a collection of noureacting homogeneous areas which are formed at diverse times. The polymer in the initial stage is formed in the shape of a charged and highly-dispersed aerosol, i. e. the second model is realized. The particle size of the polymer decreases strongly with degree of conversion and the "consequence" of the first model grows. Mathematical analysis shows that the first model is characterized by a rate maximum, but that the period for attaining this maximum is much less than

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"APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8

ACCESSION NR: AP4040956

that observed experimentally. According to the second model, the polymerization rate should grow without interruption with accumulation of the solid polymer. The polymerization rate will be reduced with decrease in polymer particle size. Hence, the experimental kinetic curve will lie between the kinetic curves for the first andsecond models. Orig. art. has: 4 figures, 1 table and 2 equations.

ASSOCIATION: Fiziko-khimicheskiy institut im. L. Ya. Karpova (Physics and Chemical Institute)

SUBMITTED: 25Nov63 ENCL: 00

SUB CODE: OC, GP NO REF SOV: 006 OTHER: 007

Card 3/3

APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8"

"APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8

L 4289-66 EWT(m)/EPF(c)/EPR(n)-2/EWP(j)/T/EWA(h)/EWA(l) RPL WW/GJ/RM

ACCESSION NR: AP5024006 UR/0020/65/164/002/0365/0367

AUTHOR: Gerasimov, G. N.; Sabirova, T. M.; Khomikovskiy, P. M.; Abkin, A. D.

TITLE: Radiation polymerization of vinyl chloride in solid solutions at low temperatures

SOURCE: AN SSSR. Doklady, v. 164, no. 2, 1965, 365-367

TOPIC TAGS: vinyl chloride, radiation polymerization, mineral oil, solid solution

ABSTRACT: The polymerization of vinyl chloride was carried out in mineral oil at a dose rate of 70 rad/sec (Co^{60}) and temperatures of -78 and -196C, i.e., above and below the melting point of vinyl chloride. Considerable postpolymerization was found to take place during thawing of the solutions, so that the latter was carried out very rapidly when kinetic data were taken. The kinetic curves obtained show that at -196C the reaction rate decreases sharply during the first stage, and the polymerization practically ceases at 15 - 20% conversion; the yield of polymer becomes markedly reduced when the vinyl chloride content increases from 6 to 15%. At -78C, the reaction rate increases sharply at first, then reaches a maximum, and declines rapidly at 50 - 60% conversion. The products formed are low-molecular polymers. It is postulated on the basis of the kinetic data that the polymerization of vinyl chloride in a solid mineral oil solution is determined by a

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ACCESSION NR: AP5024006

3

definite ordered arrangement of vinyl chloride molecules. The structure of the frozen systems also affects the polymerization process. In contrast to amorphous solutions of vinyl chloride in low-molecular paraffins, the solid system vinyl chloride-mineral oil is a microheterogeneous one; in the presence of microheterogeneity, significant kinetic effects can take place. Orig. art. has: 2 figures.

ASSOCIATION: Fiziko-khimicheskiy institut im. L. Ya. Karpova (Physiochemical Institute)

SUBMITTED: 10Dec64 ENCL: 00 SUB CODE: MT GC

NO REF SOV: 001 OTHER: 005

Card 2/2

APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8"

"APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8

GERASIMOV, G.

"Selected papers" by Walter P.Reuther. Reviewed by G.Gerasimov.
Sov.profsoiuzy 18 no.14:43 Jl '62. (MIRA 15:7)
(United States—Economic conditions) (Reuther, Walter P.)

APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8"

"APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8

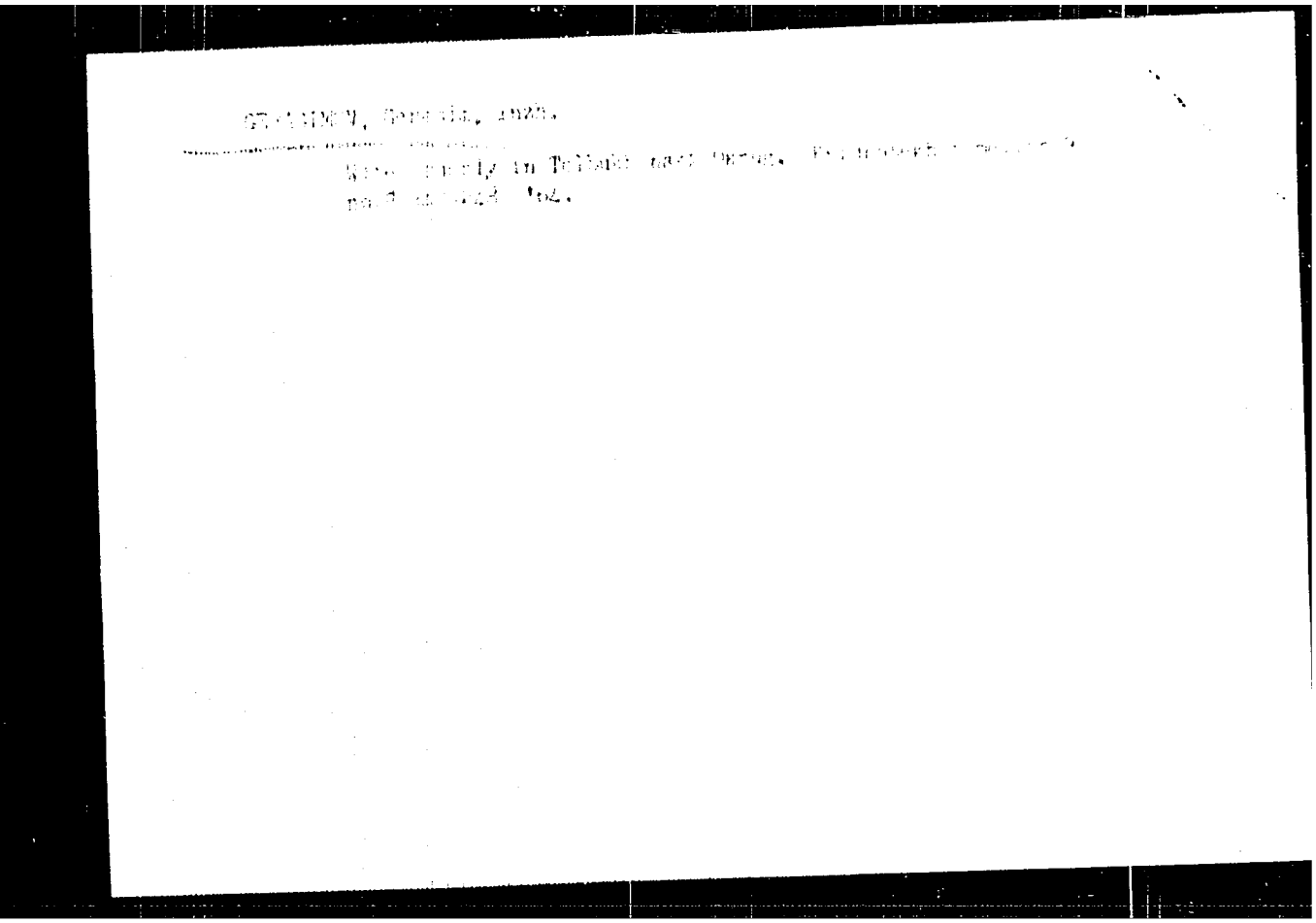
GERASIMOV, G., inzh.

How to simplify the adjustment of fuel pumps. Tekh.v sel'khoz. 21 no.8:74-75 Ag '61. (MIRA 14:7)

1. Petropavlovskiy tekhnikum mekhanizatsii sel'skogo khozyaystva.
(Fuel pumps)

APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8"

"APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8



APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8"

"APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8

GERASIMOV, Gennadiy Aleksandrovich.

Molotov State Agricultural Inst imeni Pryanishnikov, Academic degree of Doctor of Agricultural Sciences, based on his defense, 25 October 1954, in the Council of the Moscow Order of Lenin Agricultural Acad imeni Timiryazev, of his dissertation entitled: "Doctrine of restoration of conditions of fertility of soil in Russian Agricultural science in the 18th and the first of the 19th Centuries". and Academic title of Professor, Chair: "General Land Husbandry".

Academic degree: Doctor of Sciences
Academic title: Professor

SO: Decisions of VAK, List no 8, 2 April 55, Byulleten MVO SSSR, No. 14, July Moscow pp 4-22, Uncl.
JPRS/NY-429

APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8"

"APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8

GERASIMOV, G.G.

Open pleural pneumonolysis in ineffective artificial pneumothorax. Probl.tub. 34 no.6 supplement:24-25 N-D '56. (MLRA 10:2)

1. Zaveduyushchiy khirurgicheskim otdeleniyem Pinskogo gorodskogo protivotuberkuleznogo dispansera.

(COLLAPSE THERAPY,
pneumonolysis, open pleural in ineffective artif. pneumothorax (Rus))

APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8"

"APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8

GERASIMOV, G.G.

Treatment of fistulous forms of osteoarticular tuberculosis with streptomycin combined with penicillin [with summary in French]. Probl.tub. 35 no.1:53-56 '57. (MIRA 10:6)

1. Zav. khirurgicheskim kabinetom Pinskogo gorodskogo protivotuberkuleznogo dispansera (glavnyy vrach T.L.Kolobova).
(TUBERCULOSIS, OSTEOARTICULAR, ther.
penicillin & streptomycin in fistulous forms (Rus))
(PENICILLIN, ther. use
tuberc., osteoarticular, fistulous forms with streptomycin (Rus))
(STREPTOMYCIN, ther. use
tuberc., osteoarticular, fistulous forms, with penicillin (Rus))

APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8"

"APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8

GERASIMOV, G.Ye.

Detection of early forms of osteoarticular tuberculosis in children in a village in Brest Province. Probl. tub. 38 no.3: 11-15 '60. (MIRA 14:5)

1. Iz Pinskogo protivotuberkuleznogo dispansera (zav. khirurgicheskim kabinetom G.Ye.Gerasimov, glavnyy vrach T.L.Kolobova).
(BREST PROVINCE—BONES—TUBERCULOSIS)

APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8"

"APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8

GERASIMOV, G. Ya.; YAKHONTOVA, L.F.; BRUNS, B.P.

Sorption of dyes by synthetic carboxylated ion exchangers. Vysokom. soed. 2 no.6:864-870 Je '60. (MIRA 13:6)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut antibiotikov.
(Sorption) (Dyes and dying) (Ion exchange)

APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8"

"APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8

GERASIMOV, I., gvardii general-mayor; BEDRIN, A., gvardii podpolkovnik; IL'INEVSKIY, B., gvardii mayor

From tanks from indirect laying positions. Voen. vest. 42 no.5:100-105 My '63. (MIRA 16:5)
(Tanks (Military science)) (Shooting, Military)

APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8"

"APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8

GERASIMOV, I.

From the pages of factory newspapers. Khim.volok. no.6:75-76 '61. (MIRA 14:12)

(Textile fibers, Synthetic)

APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8"

"APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8

GERASIMOV, I.

Geography & Geology

Bulgarska akademiia na naukite. Geografski institut. IZVESTIIA. Sofiia. Vol. 3, 1957.

Geographical observations in Bulgaria. p.3.

Monthly List of East European Accessions (EEAI), LC, Vol. 8, No2 2, February 1959, Unclass.

APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8"

"APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8

GERASIMOV, I. A.

Telephony; a textbook for military signal schools. Moskva, Voen. Izd-vo, 1941. 579 p.
(49-42758)

UG620.G47

APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8"

"APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8

GERASIMOV, I.A.

Gas pipets. I. A. Gerasimov. *Ugol* 24, No. 2, 28-30 (1949).—Details of mech construction of various gas-sampling pipets for obtaining samples of mine gases are presented.
Marshall Sittig

APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8"

"APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8

GERASIMOV, I., inzh.; NASONOV, K., inzh.; PUTILOV, V., inzh.

Protection of ship mechanisms by liquid inhibited lubricants. Mor. flot 23 no.8:21-22 Ag '63. (MIRA 16:11)

APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8"

"APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8

BALASHOV, B., inzh.; GERASIMOV, I., insh.; ZAKHAROV, N., insh.

Results of boiler operation on sulfurous mazut with the NP-102 additive of the All-Union Scientific Research Institute of Petroleum and Natural Gas. Mor. flot. 24 no.8:25-26 Ag '64. (MIRA 18:9)

APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8"

"APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8

MOROZOV, A.P.; MININ, V.F., inzh.; GERASIMOV, I.D., inzh.

Roof of an experimental shop. Biul. tekh. inform. 5 no.3:10-11 Mr '59. (MIRA 12:7)

1.Deystvitel'nyy chlen Akademii stroitel'stva i arkhitektury SSSR.

(Roofing, Concrete)

APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8"

"APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8

GERASIMOV, I.D., inzh.

Thin-walled corrugated reinforced cement coverings. Prom. stroi. 38 no.1:22-25 '60. (MIRA 13:5)

1. Leningradskiy filial Akademii stroitel'stva i arkhitektury SSSR.
(Roofs, Concrete)

APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8"

"APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8

GERASIMOV, I.D., inzh.; ROZHDESTVENSKAYA, V.A., inzh.; STESEL', I.Ye., inzh.

Mesh-reinforced concrete covering for a building with a span of 24 m. Prom. stroi. 39 no.3:35-37 '61. (MIRA 14:4)
(Saratov--Precast concrete construction)

APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8"

"APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8

GERASIMOV, Igor' Dmitriyevich, inzh.; KRUPITSA, K.K., otv. red.; PACHKOVSKIY, V.V., tekhn. red.

[Mesh-reinforced concrete in in construction]Armotsement v stroitel'stve. Krasnoiarsk, Nauchno-issl. in-t po stroit., 1962. 117 p. (MIRA 15:9)
(Precast concrete construction)

APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8"

"APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8

GERASIMOV, Igor' Dmitriyevich; SVIRIN, N.F., red.; ALAKHYSHEVA, N.A., red.izd-va; GVIRTS, V.L., tekhn. red.

[Building of thin-walled three-dimensional structures in Krasnoyarsk Territory] Stroitel'stvo tolkostennykh prostranstvennykh konstruktsii v Krasnoiarskom krae. Leningrad, 1963. 20 p. (Leningradskii dom nauchno-tekhnicheskoi propagandy. Obmen peredovym opytom. Seriia: Stroitel'noe proizvodstvo, no.1) (MIRA 17:3)

APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8"

"APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8

GERASIMOV, I. F.

GERASIMOV, I. F.
(Article # 477)

Primorsk milit. Hosp. A case of successful treatment of otogenous meningitis with intra-arterial injections of penicillin **Vestn. Oto-rhinolaringol.** 1950, 5(70-71)

Report of a case which reacted unsatisfactorily to 200 000 U. i.m. and 16000 U./day in the cisterna. Improvement (return to consciousness) followed injection of 125,000 U. into the carotid artery. This treatment had to be repeated 14 days later on account of a relapse with tetraplegia. Recovery finally ensued.

Van der Molen - Terwolde (XX, 11, 8)

Sb: Excerpta Medica Vol. 5 No. 2 Sec. VIII February 1952

APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8"

"APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8

GERASIMOV, I. F.

"Diagnosis of Otitis in Infants," Vest. oto-rin., 14, No.5, 195[illegible]

APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8"

"APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8

ALEKSANDROVA, I.L.; VZOROVA, S.I.; BRAANDES, R.I.; GERASIMOV, I.F.; DARINSKIY, Anatoliy Viktorovich; KOMLYAKOVA, V.I.; KOSHELEVA, Ye.S.; LEVINA, B.M.; LIZOGUB, V.K.; RODIONOVA, F.A., red.; TATURA, G., tekhn. red.

[Reader on the economic geography of the U.S.S.R.] Khrestomatiia po ekonomicheskoi geografii BSSR; posobie dlia uchitelei. Moskva, Gos. uchebno-pedagog. izd-vo M-va prosv. RSFSR, 1961. 342 p. (MIRA 14:8)

(Geography, Economic)

APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8"

"APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8

GERASIMOV, I.G., kand. filosofskikh nauk, dotsent

Mathematical idealization and mathematical apparatus in quantitative analytical methods. Trudy MIIT no.223:26-37 '65. (MIRA 18:11)

APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8"

"APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8

GERASIMOV, I.I., inzhener.

Founding composite worm gears. Lit.proizv. no.5:28-29 My '56. (MLRA 9:8)

(Gearing, Worm) (Bronze founding)

APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8"

"APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8

ACCESSION NR: AP4026851 S/0065/64/000/004/0036/0039

AUTHORS: Gerasimov, I.I.; Korotnenko, V.P.; Zakharov, N.A.; Putilov, V. Ye.; Sharapov, V.D.

TITLE: The profitableness of using liquid conservation lubricants for the protection of maritime equipment

SOURCE: Khimiya i tekhnologiya topliv i masel, no. 4, 1964, 36-39

TOPIC TAGS: preservation lubricant, conservation lubricant, grease, oil, liquid conservation lubricant, economics, cost reduction, labor reduction, K-17 conservation lubricant, K-19 conservation lubricant, application

ABSTRACT: The drawbacks of conservation greases and the economies effected by liquid lubricants are discussed. Cost estimates are based on the application of K-17 and K-19 liquid conservation lubricants introduced in 1959 by the VNIINP. Examples are given of savings in labor due to the comparative ease of applying the liquid materials in comparison to the solid, and the longer preservation effected (3 years) by the liquid materials, eliminating need for

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APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8"

"APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8

ACCESSION NR: AP4026851

annual reapplication. Although the initial cost of the liquid lubricants is high, much less K-17 or K-19 is required for protection: film thicknesses of only 0.05-0.1 mm. are required in comparison to 2.5-3 mm. coatings of greases. The liquid materials can be applied cold; other conservation lubricants must be heated themselves and applied to heated surfaces. The liquid materials can be readily removed; the dismantling of machinery associated with grease removal is not required. Orig. art. has: 2 tables.

ASSOCIATION: None

SUBMITTED: 00 DATE ACQ: 28Apr64 ENCL: 00

SUB CODE: FL NR REF SOV: 000 OTHER: 000

Card 2/2

APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8"

"APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8

GERASIMOV I. P.

"A Practice Handbook on the Execution of Class II, III, and IV Triangulations", Geodezizdat, M., 1941.

APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8"

"APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8

GERASIMOV, I.M.

AUTHOR: Gerasimov, I. M., Candidate of [illegible] sciences

TITLE: Solving Conditional Equations and Correction Equations by the Method of Successive Transformation (Resheniye uslovnykh uravneniy i uravneniy popravok sposobom posledovatel'nykh preobrazovaniy)

PERIODICAL: Geodeziya i kartografiya, 1958, Nr 7, pp. 5-14 (USSR)

ABSTRACT: The method of solving equations of condition by transformation is used in the USSR for more than 20 years. It is also known by the term: many-group method of balancing and in some cases simplifies the balancing procedure. One of the variants of this method, that is to say, the method of successive transforming all equations of condition and their use in the balancing of intermediate measurements has not yet found its proper place in the theory and practice of balancing. The computations show that by this method a smaller number of operations is required than with the abbreviated procedure by Gauss. This method of transforming the equations of condition is principally that of replacing

Card 1/2

APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8"

"APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8

SOV/6-58-7-2, 17

Solving Conditional Equations and Correction Equations by the Method of Successive Transformation

some of the equations of condition by other equivalent ones. This method is described in detail. The formulae deduced (15) and (16) show 1) that the wanted corrections do not change in the transformation of the error equations and 2) that by the method of successive approximations the corrections v_i can be found earlier than the unknowns x, y, z, ..., u. By this method the unknowns are obtained by a successive solution of the system (15). There are 1 figure, 4 tables, and 3 references, which are Soviet.

1. Mathematics 2. Transformations (Mathematics)

APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8"

"APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514810013-8

3(4) SOV/6-59-2-4/22

AUTHOR: Gerasimov, I. M., Candidate of Technical Sciences

TITLE: Solution of Conditional Equations and Corrective Equations According to the Method of Addition of Coefficients (Resheniye uslovnykh uravneniy i uravneniy popravok po sposobu dobavleniya koeffitsiyentov)

PERIODICAL: Geodeziya i kartografiya, 1959, Nr 2, pp 14 - 17 (USSR)

ABSTRACT: On the solution of 20 normal equations according to the complete scheme of Gauss it was necessary to fill 840 lines with numbers by use of logarithmic tables. On the solution of the same equations by means of computers according to the reduced scheme of Gauss only 59 lines were put down (two at a time for each normal equation, exclusive of the first). On the application of the method of the "Krakovyan root" 2 lines are sufficient for each equation. However, if full use is made of the possibilities offered by Gauss's algorithm, the numbers required for the solution of each equation can be put down in one line. For this purpose, the coefficients of the transformed normal equation from which the first unknown was eliminated are represented in a

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special way that is described in this paper. Furthermore, on the solution of corrective and conditional equations the free term equally is represented in a special way shown here. In the next transformation in which the first two unknown quantities were eliminated the coefficients are expressed in a special way as well. The same holds also for the free term in solving corrective and conditional equations. The terms of all other transformed equations of the system to be solved can be represented accordingly. In the case of such a structure of coefficients and free terms of transformed normal equations the substitution of coefficients and the solution of normal equations can be connected. That is of great practical value because the separate scheme of calculation of the "composition and solution of normal equations" is superfluous and can be replaced by addition of new coefficients in the scheme "coefficients of conditional equations" (or "coefficients of corrective equations"). These coefficients must be computed and successively substituted into the corresponding column since the coefficients of

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the preceding line are used as initial values in the calculation of data for each new line. It was I. Yu. Pranic-Pranevich who suggested in his "Textbook of Compensating Computations of the Triangulation" to neglect the separate scheme for the composition and solution of normal equations which he substantiated and checked practically, however, in a different way, i.e. while maintaining the lines for transformed as well as elimination equations. In conclusion, the method is illustrated by two examples. There are 3 tables and 2 Soviet references.

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AUTHOR: Gerasimov, I. M. Candidate of Technical Sciences

TITLE: Adjustment of Linear Triangulation by the Method of Conditional Observations

PERIODICAL: Geodeziya i kartografiya, 1960, Nr 1, pp 8-17 (USSR)

ABSTRACT: In adjusting geodetical nets of any type, especially triangular series, it is convenient to use the surface method in a peculiar way. One variant of this method, which should be better called the diagonal method, is investigated here. For reasons of clearness, this method is shown by the example of adjusting a series of plane triangles (Fig 1). The following independent conditions are assumed: the diagonals calculated for the adjusted values of the measured triangle sides must be exactly equal to the length of the same diagonal obtained by the solution of the inverse problem by means of the final coordinates of the trilateration points. Condition (1) for the triangular surfaces is written down. It can only be complied with if the changes ΔP of the triangular surfaces comply with condition (2). With the use of (2), the relation between the corrections to the preliminary value of the diagonal $\overline{BD}$ and

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the corrections of the measured sides can be determined. The use of this relation is one of the main characteristics of the method described. When using this method it is not necessary to calculate angles or consult tables. The formulas for calculating the point coordinates by the measured triangle sides were found by S. A. Butler and V. A. Polevoy (Refs, Footnote on p 9). More convenient formulas are given here for the purposes under review. They permit a simultaneous calculation of the point coordinates and the coefficients of the conditional equations of the diagonals. The conditional equations of the diagonals are solved in common by the method of least squares. Tables 1,2,3, and 4 show the order, details, and control of the calculations. They present an example of adjusting a series of triangles with measured sides. Finally, the difference in using the diagonal method for adjusting a central system with respect to the case investigated is pointed out. The paper by G. A. Burmistrov (Ref, Footnote p 8), and the formula by Geron, are mentioned. There are 3 figures, 4 tables, and 3 Soviet references.

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